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a superior chief,—a king without sceptre, but more feared and respected than a king. Having obtained this information towards the end of my sojourn at Matapen, I pretended to take the route of Sierra Leone, and thus on the fourth day of my march arrived at Mano, the residence of Bagon, the supreme chief I have spoken of. I was received by him in the most friendly manner. He showed me, soon after my arrival, the river Tayei, which is the principal affluent of the Mongray, and flows from the Kissi and Sangarali countries, forming two branches. The eastern branch traverses the Kono country, the western the Kouranko district. These two branches are navigable without interruption for eight days' journey above Mano, and their banks are as thickly populated as the Boum country, excepting the factories.

"Bagon has a great wish to have a factory, and with a view to this has given me most useful information concerning the productions of the country, such as cotton, palm-oil and palm-nuts, ground-nuts, ivory, and ebony. Ivory is very abundant here, and has no value. Bagon told me that if I was willing to stay with him he would send his troops to hunt elephants, which abound in his forests, and obtain plenty of ivory for the factory. Cotton may be obtained for 3*d.* or 4*d.* a pound, seeded and cleaned; that is, 4*d.* in goods at their value here, which is equivalent to 2*d.* on the coast. Rice and other products of the soil have no price. This locality being so desirable a situation for a trading post, I have decided to remain some time and make a trial of it. If my speculation succeeds, I shall fix myself here; if not, I shall only have to recover the payment for my goods, with the profits, and then continue my journey towards the north.

"I must not forget to tell you that, besides the road by water direct to Sherbro, there is a road by land which leads, in two days' march, to Matapen. To make a trial in trade at Mano I address myself to you. If my proposition suits you, have the goodness to despatch the first lot of goods, with an agent if possible. If you have not one at hand, I will employ in the mean time the interpreter whom I brought from Matapen, and who has for a long time worked at trading stations. If you send the goods, send Aly forward with a letter informing me of the probable date of their despatch and the route taken, whether by land or water. Whichever road you choose, Bagon will send his people to meet your messenger at Matapen if it is the land-route, and at Mongray if it is by water. As to the conditions on which you send the goods and receive produce in payment, you may fix your own terms. If my proposal does not suit you, let me ask of you to do me the favour of facilitating Aly's journey to Sierra Leone.

"JULES GÉRARD."

The PRESIDENT said the members of the Society must all lament the loss of M. Jules Gérard, who was present in that room shortly before his departure on the expedition which proved fatal to him. The country in which M. Jules Gérard was supposed to have been murdered was very little known to geographers. The project that he had in view at the time of his death was, perhaps, the most adventurous of any of the travels of modern times. It was no less than to proceed from the west coast, near Sierra Leone, to Timbuctoo, and thence to the French settlements in Algeria, where he had distinguished himself in former years as "the Lion Killer."

The following Papers were read :—

1. *Ascent of Mount Hood, Oregon.* By the Rev. H. K. HINES.

[Extracts.]

THE Cascade range of mountains is a northward continuation of the *Sierra Nevada* of California, and traverses the state of Oregon and

the territory of Washington from south to north, at a distance of 100 miles from the Pacific Ocean. This range springs up to an average altitude of 8000 or 10,000 feet, while, at intervals of many miles, more aspiring summits, from 5000 to 8000 feet higher, rise above the evergreen roofing of the lower mountains. The highest of these is Mount Hood. It stands about 50 miles south of where the Columbia has ploughed its way through the Cascade Mountains, and in the centre of that range from east to west.

In September of 1864, in company with three gentlemen of Vancouver, I first attempted to reach the summit of Mount Hood. On reaching an altitude about 800 feet below the summit, a dense cloud came sweeping against the north side of the mountain, and, drifting rapidly over it, instantly enveloped us in its folds. The air changed suddenly to a fierce cold. The driving snow filled the air so entirely that a cliff of rocks 300 feet high, standing not more than fifty feet from us, was invisible. To go up or to go down, was, for the time, alike impossible. One of my companions was chilled nearly to insensibility, but we struggled against the tempest for hours, unwilling to be defeated in our purpose to reach the summit.

On the morning of the 24th of July, 1866, in company with three gentlemen of the city of Portland, Oregon, I set out full of determination to stand upon the summit, if energy and endurance could accomplish the feat. Our rendezvous was at the house of a Canadian, who, fourteen years before, had erected a cabin at the place where the emigrant road leaves the mountains and enters the valley of the Willamette. From this place the track enters the mountains along the gorge through which flows a dashing river about 300 feet in width, which rises beneath the glaciers of Mount Hood. Up this stream we travelled for 30 miles, when, leaving the gorge, the way makes a *détour* to the south to gain the summit ridge. Here is the celebrated "Laurel Hill." For three or four miles the ascent is continuous, and in many places very steep.

Reaching the top of Laurel Hill we were on the general summit of the range: a comparative level of perhaps 10 miles in width, whose general character is that of a swamp or marsh. On this plateau is a dense and grand growth of fir, cedar (*Thuja gigantea*, Nutt.), pine and kindred evergreens, with an almost impenetrable undergrowth of laurel (*Rhododendron maximum*, Hook.). Straggling rays of sunlight only here and there find way through the dense foliage to the damp ground. Passing over this level we crossed several bold clear streams, coursing down from the direction of Mount Hood, and then, turning to the left, we took an old Indian

trail leading in the direction of the mountain. After a ride of an hour and a half up a continuous and steep ascent, we came to an opening of scattered trees which sweeps around the south side of the mountain. It was about five o'clock when we emerged from the forest, and stood confronting the wonderful body of rock and snow which springs up from the elevation.

We selected a place for our camp on a beautiful grassy ridge between one of the main affluents of the Deschutes River and one of the Clackamas, and which nearly constitutes the dividing ridge of the mountain. Having erected here a hut of boughs and gathered fuel for a large fire during the night, we spread our blankets on the ground and slept well until the morning. We picketed our horses in this place. At seven o'clock of Thursday we were ready for the ascent. For the first mile and a half the ascent was very gradual and easy, over a bed of volcanic rock, decayed and intermixed with ashes. Huge rocks stood here and there, and occasionally a stunted juniper found precarious foothold; some beautiful variegated mosses were also seen clinging to little knolls of sand. We soon reached the foot of a broad snow-field, which sweeps around the south side of the mountain, several miles in length, and extending upward to the immediate summit. The first part of this ascent is comparatively easy, being smooth, and only in places so steep as to render the footsteps uncertain. Near the upper edge of this field of snow the deep gorges, from which flow affluents of the streams Deschutes on the right and Sandy River on the left, approach each other and seem to cut down into the very foundation of the mountain. The waters were rushing from beneath the glaciers, which, at their upper extremity were rent and broken into fissures and caverns of unknown depth.

The present summit of the mountain is evidently what was long since the northern rim of an immense crater, which could not have been less than 3 miles in diameter. The southern wall of the crater has fallen completely away, and the crater itself become filled with rock and ashes overlaid with the accumulated snows of ages, through the rents and chasms of which now escape smoke, steam and gases from the pent-up fires below. The fires are yet so near that many of the rocks which project upward are so hot that the naked hand cannot be held upon them. Just at the south-west foot of the circular wall, now constituting the summit, and at a distance of near 2000 feet from its extreme height, is the main opening of the crater. From this a column of steam and smoke is continually issuing, at times rising and floating away on the wind, at other times rolling heavily down the mountain. Into this crater

we descended, as far as it was possible to go without ropes or a ladder. The descent was stopped by a perpendicular precipice of ice 60 or 70 feet high, resting below on a bed of broken rock and ashes so hot as immediately to convert the water, which dripped continually from the icy roof 100 feet above, into steam. The air was hot and stifling.

At this point the real peril of the ascent begins. It leads out and up the inner wall of what was once the crater, and near 1000 feet of it is extremely steep. The whole distance is an ice-field, the upper limit of a great glacier which is crushing and grinding its slow journey down the mountain far to the right. About 700 feet from the summit a *crevasse*, varying from 5 to 50 feet in width, and of unknown depth, cuts clear across the glacier from wall to wall. There is no evading it. The summit cannot be reached without crossing it. Steadily and deliberately poisoning myself on my staff, I sprang over the chasm at the most favourable place I could select, landing safely on the declivity 2 or 3 feet above it, and then with the staff assisted the others to cross. The last movement of 15 feet had considerably changed the prospect of the ascent. True, the crevasse was passed, but we were thrown directly below a wall of ice and rocks 500 feet high, down which masses, detached by the heat of the sun, were plunging with fearful velocity. To avoid them it was necessary to skirt the crevasse on the upper side for a distance, and then turn diagonally up the remaining steep. It was only 700 feet high, but it was two hours' sinewy tug to climb it. The hot sun blazed against the wall of ice within two feet of our faces, and the perspiration streamed from our brows, but on nearing the summit the weariness seemed to vanish, and with a feeling of triumph we bounded upon the pinnacle of the highest mountain in North America.

The summit was reached at about the centre of the circular wall which constitutes the extreme altitude, and it was so sharp that it was impossible to stand erect upon it. Its northern face is an escarpment several thousand feet high. I could only lie down on the southern slope, and, holding firmly to the rocks, look down the awful depth. A few rods to the west was a point 40 or 50 feet higher, to the summit of which we crawled, and then discovered that 40 or 50 rods to the east was a point still higher, the highest of the mountain. We crawled back along the sharp escarpment, and in a few minutes stood erect on the highest pinnacle. This was found to be 17,640 feet high, the thermometer standing at 180°, about 40 feet below the summit, when the water boiled—giving

32 degrees of depression. This estimate makes Mount Hood higher than any summit of Europe or North America.

The view from the summit was magnificent. From south to north the whole line of the Cascade Range is at once under the eye, from Diamond Peak to Ranier, a distance of not less than 400 miles. Within that distance are Mounts St. Helen's, Baker, Jefferson, and the Three Sisters; making, with Mount Hood, eight snowy peaks. Eastward the Blue Mountains are in view, and lying between us and them are the broad plains watered by the Deschutes, John Day's, and Umatilla rivers. On the west the piny crests of the coast range cut clear against the sky, with the Willamette Valley sleeping in quiet beauty lying at their feet. The broad silver belt of the Columbia winds through the evergreen valley towards the ocean. Within these limits is every variety of mountain and valley, lake and prairie, bold beetling precipices and graceful rounded summits blending and melting away into each other. It was with reluctance that at length we took the first step down the declivity.

The descent to the great crevasse, though much more rapidly accomplished, was quite as perilous as the ascent from it. We were now approaching the gorge, and a mis-step might precipitate us into unfathomed depths. Less than half an hour was sufficient to retrace the weary climbing of two hours, and standing for a moment on the upper edge of the chasm, I bounded over it where it was 8 feet wide. The impetus of the leap sent me sliding a long distance down the icy steep below.

In two hours and a half from the summit we were in our camp. At dark we began to pay the price of our day's work. The glare of the sun on the ice had burnt our faces and affected our eyes until they became so painful that we could not sleep. I kept on my eyes and face all night a cloth wetted in ice-water, and in the morning was able to see, but two of the party were quite blind for forty-eight hours.

Olympia, Washington Territory, U. S.,
10th Nov., 1866.

2. *A Journey across the Cascade Mountains into Eastern Oregon and a Description of Idaho Territory.* By ROBERT BROWN, Esq., F.R.G.S.

[Extracts.]

THE Oregon of to-day is not in geographical extent the same as previous to the Ashburton Treaty of 1846, when it was not very distinctly defined, stretching from the Californian boundary up to near